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A Botanic Garden for New York.

THE Legislature of this state which has just adjourned added certain amendments to an act incorporating the New York Botanical Garden in 1891, and the men interested in this project are now able to go forward and provide for the establishment and maintenance of what is called in the act "a botanical garden and museum and arboretum for the collection and culture of plants, flowers, shrubs and trees; for the advancement of botanical science and knowledge, and the prosecution of original researches in these and in kindred subjects; for the prosecution and exhibition of ornamental and decorative horticulture and gardening, and for the entertainment, recreation and instruction of the people." The garden is to occupy grounds not exceeding 250 acres, either in Bronx Park or in such other of the public parks north of the Harlem River as may be agreed upon by the Park Board of the city and the Board of Managers of the Botanical Garden.

The work of constructing and governing this institution is ordered somewhat on the plan adopted in the case of the Museum of Natural History and the Museum of Art—that is, after the corporation have raised not less than $250,000 for carrying out the objects of the enterprise, the city is to provide grounds and furnish suitable buildings according to plans approved by the Trustees of the garden. For police purposes and for the maintenance of roads and walks, the grounds shall be subject to the Park Board, but for other purposes the buildings and grounds shall be under the control of the Trustees, who shall make such restrictions and regulations as to the cultivation and preservation of the garden as may be required. Four members of the Faculty of Columbia College, the President of the Torrey Botanical Club, the President of the Board of Education in this city, and certain other members who may be added by a majority vote of this Board, shall be known as scientific directors, and shall have power to appoint a director-in-chief, and shall be responsible for the scientific conduct of the institution, while the financial and business management of the corporation is subject to the control of a larger board, consisting of the scientific directors, the Mayor of the city of New York and the President of the Park Board, and nine other members elected by the corporation.

Of course, $250,000 is a sum altogether inadequate to establish or to conduct a botanical garden worthy to be named with the garden at Kew, for example. To design and plant an arboretum with accompanying shrubberies, to establish and maintain collections of hardy herbs of all sorts from alpine plants to aquatics, to fill glass houses with representatives of the flora of the tropics, and in the mean time to develop a museum, a library, and, most of all, a comprehensive herbarium, will require a great deal of money, even when it is administered with the utmost economy. This is by no means an insurmountable difficulty, however, for there are New York merchants and bankers whose names are synonyms for public spirit, and if the garden once shows itself to be worthy of the metropolis of the New World, its support will be assured. Whether it will ever become an institution of that rank depends primarily upon the quality of the man who takes it in charge and leaves upon it the imprint of his ideas and character. The library and the museum and the herbarium at Kew have grown to their unrivaled size and value because when Sir William Hooker was invited to manage it all the world knew that its scientific character was assured, and it attracted gifts from all sides. The spirit and temper of its early management were continued during the rule of the second Hooker and still prevail under the present director, until the atmosphere of the place, its traditions and tendencies all help to make it easier in the future to keep on the highway of progress.

We may hardly hope to secure a man with such a world-wide repute as a botanist as the first director of Kew, but we ought to have one with the same consuming zeal, with equal industry, with a scientific habit, and an integrity of character which inspires the confidence of all naturalists. There will be innumerable temptations and difficulties in the way of proper management. The director will be assailed with clamor to make it a pretty flower-garden at all hazards; he will be criticised because results are not produced immediately which it takes the labors of years to perfect. Unless the city government becomes regenerated politically, the power and influence of the city officials in the Board will be dangerous, and will tend to cripple the action of the director in a hundred ways. The hope of the garden is that some young man may be found who is willing to endure hardship for a time; who understands that an herbarium and a library are of more importance than a flower-show; who has a scientific conscience and executive force, and who holds an unwavering purpose and is willing to wait for the fruit of his labors. If the garden becomes what it should be it will cost more than money; it will cost patience, self-sacrifice, and, it may be, practical martyrdom for an idea. We do not say these things to discourage, but simply in the hope of bringing its projectors to a thorough realization of the fact that the enterprise which they have undertaken is a most serious and complicated one. Its development, if healthy, must be slow and expensive, and unless they thoroughly understand these things before they begin they will be likely to grow weary and discouraged, because success will seem so far away, even after they have done their very best.

Referring to the belief usually cherished in England that the American is a very prosaic, merely money-hunting creature, an English writer recently said in the pages of *All the Year Round* that, as a corrective for this belief, he would especially recommend an examination of "the American House Beautiful," in the honest conviction that no absolutely prosaic mind could find pleasure in beautiful surroundings. The writer continues:

We Englishmen are proud, and justly so, of the stately and the cottage homes of our land. There is nothing like them elsewhere in the world, for they possess peculiar features of their own—the former in their antiquity and their associations

the latter in their own beauty and that of their surroundings. But the great mass of us live neither in stately homes nor in cottages, and of our residences—externally, at any rate—we have very small reason to be proud. Now, as the Americans have no stately homes of our English type, with the exception of the fine old colonial residences of Virginia and New England, and as their cottage homes are modern, practical, and consequently ugly, and, as we have said, there is a wealth of refinement in many American minds, they have succeeded in making the villa residences of their big city suburbs the most beautiful in the world.

In a survey of these the first fact which strikes the eye of the stranger is the extraordinary fertility of the American architectural brain in original design. A family likeness pervades all London suburban houses, be they north or south of the Thames. If there be one pretty house, there will be scores exactly like it all around; but until within the past very few years the London suburban builder reared as fast, as cheaply, and, in consequence, as inartistically as he could, with the result that the very great majority of London suburban houses are absolutely hideous. But in an American suburb, let us say, for example, Brookline, near Boston, a suburb extending over miles of hill and dale, and planted thickly with houses, it may be asserted that not half a dozen buildings are exactly alike. The straining after the original and the striking has, of course, resulted in the erection of a few monstrosities, and of some houses more eccentric than pleasing in design, but the general average is exceedingly high.

After we have surveyed the exteriors of the houses and proceed to their interiors, another new fact strikes us, and this is how very much better the different classes of American business men are housed than are their corresponding grades in our own country. Shop-walkers, counter-men and good artisans go home every evening to houses which, in England, would not be deemed unworthy of city men of good position. The taste in furnishing and decoration may not always be as good as the houses themselves, but there is nothing corresponding to what may be called our London "genteel villa residence"; and the bank clerk, instead of huddling in one yellow-brick box in a long row with a big name, shuts himself up for the evening in his own little detached castle, which contains, on a small scale, all the accommodation and many more of the conveniences of an English gentleman's house.

American Apple Exports.

THE apple export trade from this country to England is by no means a new business, for as long as fifty years ago lots of a hundred barrels and upward were sent forward in sailing vessels that took from four to eight weeks to make the voyage. Ten years later slow steamships landed the fruit in from eighteen to twenty-five days, though not always in sound condition. Until 1870, 500 barrels of apples were considered a large shipment, but since 1875, with swifter steamers, the business has greatly increased, and is now a regular department of the fruit trade in which some fifteen firms in this city are engaged, besides half a dozen shipping brokers who see to arranging for space on the steamers and attend to other details of transportation. In 1880–81, a season of good crops, the enormous quantity of 1,159,380 barrels went to Europe from United States ports alone. The carefully compiled reports of Mr. Mahlon Terhune, of this city, for the years since 1880, show great variation in the quantity of yearly shipments, the result of abundant or short crops. For example, in 1892–93, more that 650,000 barrels were shipped from New York, Boston and Portland; of these apples almost 250,000 barrels, or nearly thirty-eight per cent., were grown in Canada. The shipments made direct from the Canadian ports, Montreal and Halifax, amounted to nearly 546,000 barrels.

The apple export season dates from August to May, and from advance-sheets of Mr. Terhune's statistics of shipments for 1893–94 it appears that the minimum quantity of less than 70,000 barrels went out from the United States this season, and but 86,000 barrels from Canadian ports. These figures indicate, with the single exception of 1883–84, the dullest apple trade in twenty-five years. Reasons for this unusual export market are found in a short crop, made still smaller by the heavy storms of last autumn, large importations to England from other countries, and the prevailing hard times. These exports, although comparatively small, were large enough to diminish appreciably the stock already insufficient for home use, so that prices have ruled unusually high in this market.

The first apples are shipped abroad about August 1st, Keswick Codlins, from New Jersey, being the earliest export of last year. The Orange Pippin, a better fruit, follows closely, but the export of these tender summer apples is always attended with risks, and as they are needed at home, shipments are likely to continue small. During the year almost every variety of American apple is exported, and Fameuse and other delicate apples stand the journey well, Red Astrachan being one of the few kinds which rarely arrives on the other side in good condition. Red-skinned apples are preferred in England by the masses, and the attractive King apple is in especial request early in the fall. But there are not enough of these, and in recent years Greenings, which come into market about the same time, have gained a place in spite of their inferior color. But the great export apple is the Newtown Pippin, the first American apple shipped to England. Coming originally from orchards in Newtown, Long Island, the best of these apples are now grown in the mountain districts of Virginia, where they are locally known as Albemarle Pippins. Here the fruit matures early and is ready for shipment by the 10th of November. These Pippins, grown on Long Island and in the Hudson River district east of that river, mature later and are not fully ripened and well-colored before January. On this side of the continent Newtown Pippins are grown only in the sections indicated. But the northern orchards are dying out, and efforts at propagation are not successful, and the fate of the Spitzenberg twenty years ago threatens this fruit. Westchester County, formerly a great centre for these apples, now produces small scaly fruit, and it seems to be only a matter of a few years when there will be none of these apples grown in the north. It has been thought by some that if the trees were not started from root-grafts, but were grafted high up on some vigorous seedlings, they might once more succeed where they are now failing. In the Virginia district the fruit grows large and of excellent quality. In New York state three heavy storms last autumn cut prospective orchard harvests of fifteen hundred to two thousand barrels down to a few hundred barrels, but in Virginia the damage was slight and the crop was large and of the good quality which attends a full-bearing season. Quite as many Newtown Pippins went abroad, all Virginia fruit, as in other recent years, and at paying rates, prices in England ranging from 25 to 40 shillings a barrel for No. 1 fruit. They are largely used for table-decoration there, and their rich flavor commends them highly, while they have also the crisp and sour qualities demanded in the English market. Their firm flesh and tough skin especially adapt them for packing and shipment, whereas many kinds, such as the Northern Spy, are easily bruised and discolored. The Newtown Pippin is much better known in England than it is here, since nearly the entire crop is exported. Christmas presents of these apples have long been fashionable, and banking firms in this city send abroad sometimes as many as 50 barrels to their business friends. More Newtown Pippins were offered in our markets this season than ever before, owing to the scarcity of other apples, but these were mostly second-rate fruit from this state and culls from Virginia, which in ordinary seasons would find no sale here. The stock of Newtown Pippins is always exhausted by March, and this year exports practically ended with the holiday trade.

Among the latest apples usually shipped are Northern Spies, which remain juicy and highly flavored to the end of the season and are sought after by the best trade. More Baldwins are usually shipped than of any other sort, and these are even later keepers. It has been said of Russets that they are an instance of the survival of the unfittest, but their merits are appreciated by a large number of buyers, and this apple ranks fourth or fifth in quantity ex-

ported. It is the longest keeper of all American apples, and is often shipped in April, while it has been sent to Glasgow and to English ports as late as June.

The firm prices which continued in England until February were then broken by large receipts from the Continent, and the demand for such American apples as were still held there was also affected by large receipts from Australia and Tasmania. The bulk of supply in England is, however, drawn from Canada, some of the best apples coming from Nova Scotia. These are of a quality superior to those grown in the United States and have remarkable keeping qualities. Transportation to England costs hardly more than freight into the United States, so that English markets stand the first chance with Canada shippers, especially as there is also a duty of 84 cents a barrel on apples brought from Canada into this country. So large a supply of Canada apples found their way to England last winter that prices were often $1.00 a barrel less than the same fruit brought here. The average wholesale price for apples in New York for the season of 1892–93 was $2.50 a barrel, and for the season just passed, $4.50 a barrel.

Many of the apples exported come from western New York; the largest apple farms have storage houses or cellars provided, and these are also found in many towns, for neighborhood use. At the beginning of winter the storage house or cellar is filled with cold air and closed up with the temperature at 28 or 30 degrees. Later in the season, when the temperature inside rises to 35 or 40 degrees, cold air is again let in. By this means apples are kept until the end of winter without ice. For late holdings cold storage is necessary. Shipments are usually made to commission dealers in the seaboard cities, by whom transportation is arranged for through a shipping broker. The fruit is sent on fast passenger steamships and is stowed in the hold away from the engine and boilers, generally in the forward part of the vessel, where the ventilation is best. In the early years of the trade apples were carefully wrapped in paper and packed in cork or mahogany sawdust, but no special precautions are now taken beyond having perfectly sound fruit. Shipments vary from 500 to 1,000 barrels, sometimes as many as 8,000 going on a single steamer. The fruit is consigned to an English agent who remits the proceeds of sale after deduction for ocean freight, besides expenses for landing, harbor dues, delivery and sale. Cable advice as to prices is sent to the dealers on this side and shipments made on such advice naturally result in gain or loss as the English market may happen to rise or fall. New York merchants tell of losing as much as $3.00 a barrel, while the highest authentic price ventured upon by a veteran dealer is 105 shillings a barrel for a half-dozen barrels twenty years ago.

The season here is nearly ended, and the few apples held in the interior of the state for trade values will all be disposed of before the new crop comes in from the South. Roxbury Russets, Baldwins and Golden Russets are the only sorts quoted in the market reports. These now arrive at the rate of about 300 barrels a day and bring at wholesale $6.00, $5.50 and $5.00 a barrel. Dealers have recently divided their barrel stock into bushel lots, and these are offered in boxes at barrel rates.

New York. *M. B. C.*

Foreign Correspondence.

London Letter.

Æschynanthus Hildebrandii.—This is a new species, and one that is likely to become a favorite with those cultivators who are interested in pretty little tropical plants. It has lately been introduced to Kew by Mr. Hildebrand, of Fort Stedman, Shan States, Burma, where it is epiphytic on the trunks of large trees, the roots finding nourishment in the crevices of the bark. Several little specimens of it have been established in teak baskets, and they are planted in sphagnum-moss, the treatment being such as is given to Phalænopsis. Although the stems are barely three inches high, they bear a considerable number of bright scarlet tubular flowers with orange and black-purple blotches in the throat; the leaves are sub-rotund, petioled and covered with fine hairs. It appears to be nearest Æ. gracilis, also Indian. The charm of the plant is in the erect habit of the short stems, the rich green of the leaves and its elegant, brilliantly colored flowers. A figure and description of it will shortly be published in the *Botanical Magazine*.

Protea cynaroides and P. nana.—These are two of the most interesting plants now flowering among the south African plants at Kew. The former is an erect-branched shrub six or eight feet high with numerous spathulate bright green leaves and a terminal head of flowers suggestive of an Artichoke, Cynara Scolymus, but the color is pale pink. The plant now in flower is growing in the succulent house along with the Agaves, and it is planted out in gravelly soil. Thus treated it is much happier and produces finer flowers than when grown in a pot. P. nana is totally different, being not unlike a small Pine in its habit of branching and in the linear and crowded leaves. The nodding cup-shaped flowers are colored blood-crimson and are two inches across. A picture of this same plant in flower, taken two years ago, was published in Garden and Forest (vol. iv., page 412) along with some notes on the handsomest sorts of Proteas, a genus well worth the attention of the modern horticulturist.

Epiphyllum Makoyanum.—This is a plant of which note should be made by growers of stove-plants, and especially of Cacti. I suppose it is nothing more than a form of E. Gaertneri, figured in the *Botanical Magazine*, t. 7201, the only difference being that in the former the branch divisions are narrow and thin as compared with the latter, and there are fewer and smaller hairs at the apices of the nodes. In flower, form and color the two are identical. They differ very much from the E. truncatum group, which have hitherto had a monopoly of the favor generally meted out to Cacti by horticulturists, and, in my opinion, they are superior. The color of E. Makoyanum is a uniform orange-scarlet, and the form is more like that of a Phyllocactus than E. truncatum. There is a plant of E. Makoyanum in flower now at Kew, which was a small branch grafted upon a short stem of Cereus nycticalus three years ago; it is now a dense mass of branches nearly two feet across, and is covered with bright-colored flowers.

Agave Potatorum.—This species was introduced into cultivation from Mexico about 1830, and it was described by Zuccarini as a good species with broad spiny leaves and a pole-like scape twelve feet high, including the thyrsoid panicle, five feet in length. An enormous specimen of it which had long been a striking feature in the succulent house at Kew, last year started to push up a flower-spike, and to give this headroom the plant was removed to the Palm-house, where it is now finely in flower. Mr. Baker suggested years ago that it was doubtfully distinct from A. Scolymus, and now he has decided that the two are identical. But, while there may not be good botanical characters to separate the two there can be no question that A. Potatorum, as represented at Kew, is very much larger in leaf, scape and panicle than any of the many forms of A. Scolymus described. The Kew plant has a huge rosette of leaves each three feet long and a foot wide; the scape is fifteen feet high and six inches in diameter at the base, and the panicle is an enormous candelabrum-like arrangement three feet high, of erect pale-yellow fleshy flowers, each three inches long. It is a magnificent Agave.

Lilium Henryi.—I do not know when this fine Lily will cease to surprise us, but it increases in vigor and beauty every year. At Kew there is now a bed of it, or rather a bed of bushes of Olearia Haastii, with some fifty bulbs of the Lilium planted among them, and some of these are now sending up purplish growths nearly an inch in diameter. Dr. Henry told us it was a giant in China, and it promises to bear out that description here. Last year we had plants of it eight feet high. In addition to the bed, we have a large batch of seedlings raised from seeds ripened

here. I anticipate immense popularity for this Lilium. It is as hardy and good-natured, apparently, as any of the L. umbellatum set.

Rhododendron Luscombei.—This hardy shrub I wish to recommend strongly to any one who wants a first-rate plant for the open border. With the habit of R. Thomsoni, one of its parents (the other being R. Fortunei), and rich rose-red campanulate flowers, each three inches across and borne in elegant clusters, it is suggestive of R. Aucklandii, to which R. Fortunei is closely allied. At Kew there are several bushes of it which have been in flower since the middle of March and are beautiful now. It was raised about twenty years ago by the gentleman whose name it bears. R. Fortunei is a species which has not beem made as much use of by breeders of Rhododendrons as it might be. It forms a handsome bush, has large bright foliage and bears its large pale pink flowers with freedom. I have never known it injured by frost at Kew. It is probably the Chinese form of R. Aucklandii, the queen of the species from the Himalayas.

Fritillaria Meleagris.—The "Snake's-head," a native of Britain, is one of the most delightful and effective of spring-flowering bulbs when planted in mass in a bed on a lawn. There are two such beds at Kew, ten feet in diameter, and they are full of flowers of various colors, ranging from purple to white and prettily tessellated or checkered. The flowers began to open a month ago and they are still in all their glory. We have another bed of a native weed, a very common weed, in fact, the vulgar Dandelion, and very effective it is, its fine dentate foliage being well developed in good soil, and its large heads of golden-yellow flowers are as attractive as anything could be. The bed is labeled simply Taraxacum officinale, and this is a source of considerable confusion and doubt to many who, were it not for the label, would recognize the weed of the wayside; but the label decides for them, and the verdict is "a beautiful plant, like a Dandelion, but much better."

Trees and shrubs which are hardy in England, flower in spring, and whose flowers are ornamental enough to please the popular eye, are receiving more than the usual amount of notice this year. This is partly owing to the decision of the Royal Horticultural Society to have a series of lectures upon them by specialists, and to invite all exhibitors to send to the fortnightly meetings examples of any worthy of exhibition. Add to this the fact that last year's drought and bright sunshine, followed by an exceptionally warm and sunny spring, has had a wonderful effect upon the floriferousness of hardy plants generally, and we have a set of circumstances calculated to give an exceptional fillip to the movement in favor of deciduous hardy trees and shrubs for the English garden. And that they eminently deserve it—indeed, that horticulture requires that they should be brought into prominent notice—is seen in the great variety and beauty they present in the few gardens where at present they only appear to be grown.

Kew is every year becoming less and less suitable for the cultivation of delicate Conifers and all evergreens to which smoke is distasteful; but it is still well adapted for deciduous trees and shrubs, which, after all, have a great deal more to recommend them than have many Conifers. It is, however, a case of "Hobson's choice." Conifers are becoming hopeless in some parts of the garden, and so other plants must be used instead. There is, fortunately, a host of beautiful and interesting things which are quite happy at Kew, and which have only to be shown in groups and grown into character to make Kew more attractive even than it is at present. Already the Rosaceæ, Leguminoseæ, and other large groups which comprise so many handsome flowered plants, have received special attention. At the present time (April 20th) there is a wealth of bloom on the trees and shrubs outside which far exceeds anything I have ever seen here, and which is attracting as great crowds of visitors as are usually seen here only in August. The most noteworthy of the hardy shrubs now in flower at Kew are Exochorda grandiflora, of which there are two large examples, one on a lawn where it forms a handsome bush and is now fairly well in flower, but not so well as the second specimen, which is trained against an east wall and is laden with beautiful snow-white flowers. Ceanothus rigidus, on the same wall, has been a picture of blue for the last fortnight; it is one of the best of the species represented here. Neviusia Alabamensis, another handsome shrub from the southern United States, is grown against a wall here and is now wreathed in flower. Genista præcox, one of the best of the Brooms, a hybrid between G. purgans and G. alba, is a grand picture, two large beds of it in a conspicuous place on a lawn being attractive from a considerable distance. Its one defect is its powerful and rather fœtid odor. Kerria Japonica, both the single and double-flowered forms, are globose bushes of yellow, and varieties of Camellia Japonica are flowering as I have never before seen them, and quite as well as the specimens under glass. Rhododendron Rhodora is also very fine this year, and Bryanthus erectus is as thickly laden with its elegant rosy-pink flowers as the common heather. Magnolias purpurea, Lennei, and, of course, M. conspicua and its variety Soulangeana, are a great attraction—Water-lily flowers the public name them.

London. *W. Watson.*

New or Little-known Plants.

Prunus orthosepala.

THE history of this plant, as I know it, is briefly this: In June, 1880, Dr. George Engelmann, of St. Louis, sent to the Arnold Arboretum a package of seeds marked "Prunus, sp., southern Texas." Plants were raised from these seeds, and in 1888, or earlier, they flowered and produced fruit, which showed that they belonged to a distinct and probably undescribed species. A name, however, was not proposed for it, and, in 1888 probably, plants or seeds were sent to Herr Späth, of the Rixdorf Nurseries, near Berlin, where this Plum was found in flower by Dr. Emil Koehne, who has described it under the name of Prunus orthosepala.*

Prunus orthosepala (see p. 187), as it grows in the Arboretum, where it is perfectly hardy, is a densely branched, twiggy shrub, four or five feet high and broad. The branchlets are stout, slightly zigzag, marked with small pale lenticels, bright reddish brown and rather lustrous during their first season, growing darker during the winter, and finally becoming dark brown. The bark of the old stems, which are sometimes armed with long, slender, straight spines, separates in large, loose, thick, plate-like scales. The winter buds are obtuse and covered with closely imbricated scales, those of the inner ranks being accrescent, variously three-lobed at maturity, and marked at the apex with red. The leaves are oblong-ovate, acuminate, long-pointed, unequally wedge-shaped or occasionally rounded at the base, and coarsely serrate, with incurved, callous, or rarely glandular-tipped, teeth; they are puberulous on the lower surface toward the base when they unfold, and at maturity are thin and rather firm, glabrous, light green and lustrous on the upper surface, pilose on the lower surface, two and a half to three inches long and two-thirds of an inch broad, with slender pale midribs impressed on the upper side, remote veins, forked and connected near the margins, fine reticulate veinlets, and slender, slightly grooved, puberulous petioles furnished near their apex with one or two large glands, and half an inch in length. The flowers, which appear at the end of May, when the leaves are about one-third grown, are produced in three or four flowered clustered fascicles, on stout pedicels half an inch long. The calyx-tube is green, turbinate, and about as long as the narrow acute lobes, which are puberulous on the outer surface, ciliate on the margins, coated on the inner surface with thick pale tomentum, and often tipped with red. The petals are narrowly obovate, rounded at the apex, narrowed at the base into slender claws, thin and white, or white

* *Deutsche Dendrologie*, 311 (1893).

tinged with pink, and are inserted remotely on the glandular disk. The stamens are orange color, exserted, and about a third longer than the slender glabrous style, which is thickened at the apex into a truncate stigma. The fruit, which ripens in the middle of September, and is produced rather sparingly, is globose, an inch in diameter, and hangs on a stout rigid stalk half an inch long; it has a thick, very dark blue, or nearly black, skin covered with a glaucous bloom; thick, juicy, yellow flesh of good flavor and quality, and a flattened, oval, or nearly orbicular, obscurely rugose, stone, deeply grooved on the dorsal edge, and conspicuously ridged and rounded on the other.

Prunus orthosepala is a true Plum, rather closely related

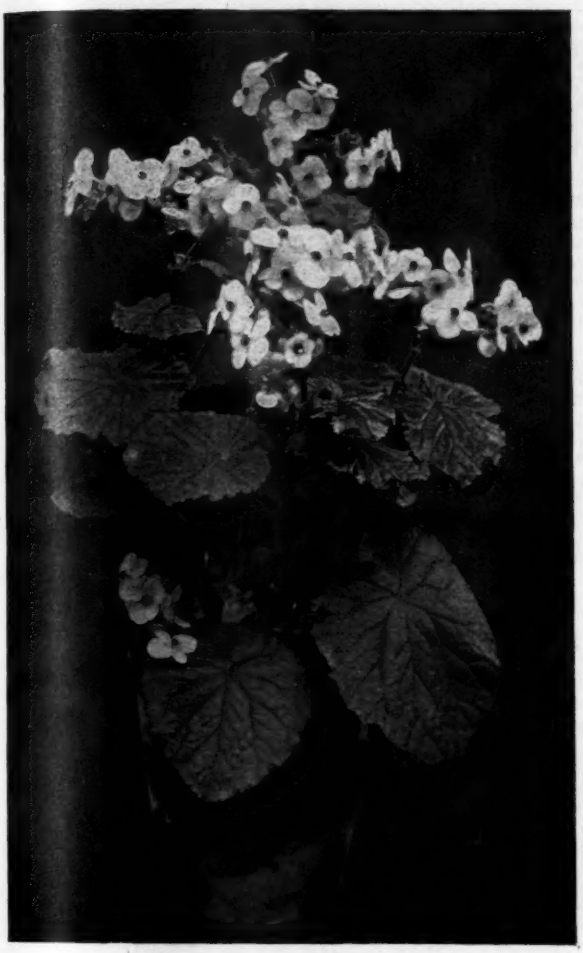

Fig. 33.—Begonia Gloire de Sceaux.

to Prunus hortulana, from which it can be distinguished by the smaller number of glands on the petioles, by the eglandular calyx-lobes, the dark-colored fruit and smoother stone.

C. S. S.

Plant Notes.

Begonia Gloire de Sceaux.

THIS is a choice winter-flowering plant, introduced some ten years since by Thibaut & Keteleer, nurserymen, at Sceaux, France. It was announced then as a cross between Begonia Socotrana and B. subpeltata. It is fibrous-rooted and not deciduous, readily increased by slips, and requires no special treatment, except generous culture during the summer. It scarcely flowers before Christmas, but its ample racemes of fair-sized rosy pink flowers are very persistent, and the variety is one of the best of winter-flowering Begonias. The leaves are peltate, and of a shining reddish bronze, quite distinct from those of any other variety. The illustration on this page is from the photograph of a specimen growing at Kew, but it hardly represents the plant when at its best. Complaint has been made in England that this Begonia is rather troublesome to grow, but it does not seem to be exacting in its demands on cultivators in this country, where it constantly grows in favor on account of its good habit and the sprightly color of its flowers.

Cultural Department.

How Not to Judge an Apple.

I HAVE been long convinced that many of the opinions given in print upon the quality of apples are from persons who do not know how to judge any fruit fairly. An apple differs from most fruits in not having its maturity for eating indicated clearly by outward appearances. Every dessert variety of this fruit has its proper time for eating out of hand, which may be long or short, according to its season. Tested at any earlier or later time, no fair judgment is possible. As regards summer and early fall fruit, the time at which an apple is at its best is necessarily short; and even with winter fruit there are not many varieties which are at their best for many weeks.

It is not too much to say that one must have time in order to decide justly upon the dessert quality of an apple; and this aside from the fact that apples, even the best, are not as good in some seasons as in others. A year like the past, in which the crop was small, and much injured by unfavorable conditions, would not be likely to give any really fair samples for testing the general quality, nor, even in favorable seasons, are the few first fruits on a young tree or graft likely to represent the true quality of the variety. Nor are fruits on the exhibition tables at fairs and fruit meetings, no matter how handsome and externally perfect such fruit may be, or appear to be, in the best state for testing their quality, and yet that is the time when a great many snap judgments are made, and find their way into print. A succession of judgments so made and printed are often quite enough to give a fruit a bad name, which it will be long getting free from, however unjust it may at last prove to be. No doubt, a good apple, with marked marketable qualities, will outlive all such mistakes and misrepresentations; but it is an injury to the fruit-growing as well as the fruit-consuming public that such mistakes should ever become current as expert judgments.

Probably no fruits have suffered more in the public estimation from such causes than the fruits of Russia during the twenty years since they were extensively introduced into this country. The minds of all those interested seem to have been made up in advance, and to be essentially based on what was known of the earlier importations of Russian apples by the way of England, some forty years ago. Nothing could have been more unfair or misleading. Russian tree-fruits vary and differ among themselves quite as much, and in as many ways, as our longer-known varieties; and no man could estimate them fairly who relied on what was learned at exhibitions where no heed was taken by exhibitors except to external characteristics. These fruits, like all others, must be carefully studied under fair conditions and with deliberation; and, so far, there are probably not yet an average of more than two or three orchards to a state, along our northern boundary, where the material exists for satisfactory study of them at this time. When we consider that considerably over three hundred varieties of these tree-fruits have been introduced, it must be clear to any intelligent mind that he who condemns them all demonstrates his own incapacity to judge any of them rightly.

Newport, Vt. *T. H. Hoskins.*

The Rock-garden.

AS the annual overhauling of the garden comes round there is the customary record to be made of the exotic plants which have survived, and of those found dead. The pretty little rose-flowered Glacial Pink, Dianthus glacialis, from the Alps of Dauphiny and north Italy, is all but gone. Last winter it stood well. I am still of opinion, however, that it is not the extreme low temperature, but rather the high temperature, which it was unable to endure. Salvia argentea

came through looking fresh. This is a biennial species with handsome, broad, silvery leaves, and ornamental on this account only. It is from the Mediterranean region, Monte de Cammarata, Sicily, and Crete, and said by one authority to be hardy "only in the southern part of Britain."

It is again pleasant to find Campanula Garganica, from Mount Gargano, Italy, looking thrifty. Linaria alpina, from the Alps of Switzerland and the Pyrenees, which forms silvery tufts covered with bluish violet flowers, and L. Dalmatica, a remarkably handsome perennial with glaucous foliage and large spikes of clear yellow flowers, have come through well. Experienced persons only should be intrusted with the work of weeding, as it often happens that some choice plant, which we have failed to raise from seeds by the ordinary methods, will sow itself. I found a considerable number of Primula rosea coming up among the old plants. This was introduced from Kashmire in 1879, and is one of the hardiest and best Primroses for this latitude. Of Mertensia Virginica it would seem impossible to have too much. It is one of the earliest and most beautiful of our spring flowers. Its handsome drooping panicles of incomparable blue are strikingly effective, yet it seems that in a few years we shall have to weed it out somewhat. We have no trouble in keeping up stock of Campanula Carpathica and C. rotundifolia; Alyssum saxatile and A. Wiersbeckii, the latter a very bright yellow; Arabis albida, Silene Virginica, Papaver nudicaule, Erysimum pumilum, Callirrhoë macrorhiza, Aquilegia Canadensis, A. cœrulea and Dianthus deltoides. The Siberian Squill, as well as the Chionodoxas, sow themselves quite freely, but it is only in places like these where no spading is done. Viola cucullata threatens to become a nuisance.

Plants now in bloom include Primula rosea, Arabis albida, Viola odorata in several forms, including Rawson's White; Aubrietia Eyrei, A. Leichtlini, Adonis vernalis and Periwinkles. Pæonia tenuifolia, a fine species with single flowers, from the Crimea, is just opening, and is one of the earliest and best of Pæonies; Saxifraga (Megasea) purpurescens and S. cordifolia are growing handsomer every day, as their stout cymose panicles of pink flowers lengthen.

On a grassy slope near by, bright patches of Phlox subulata, white and purple, are very conspicuous. Properly disposed, there are many other plants which may be used effectively in this way. Such Narcissi as Emperor, Princeps, Horsfieldi, Maximus, Stella and Sir Watkin are already past.

Wellesley, Mass. *T. D. Hatfield.*

Spring Flowers.

Irises.—Iris pumila, I. Chamæiris, I. Olbiensis and I. verna join the ranks of the flowering plants this week. They are all dwarf plants quite distinct in effect. The rich deep blue falls, with the bright orange keels of the native I. verna, render it one of the most attractive of the small rhizomatous Irises. The flowers are very small indeed, and only a fair-sized clump will produce a color-effect in the border. The I. pumila, white and violet, and I. Chamæiris, yellow, and I. Olbiensis, purple, are taller Irises, well known in many gardens. There is another Iris unfolding more perfect charms than either of the first-mentioned species, and has, in fact, more beauty than is given to many flowers. This is I. Ibirica, an old friend, which is very chary of its favors. Any description will give but a faint idea of the beauty of these flowers, with their immense standards slightly tinged with pink, and the short broad falls daintily lined and mottled with a rich dark brown on a light ground. A deep rich blotch of brown on the blade of the fall gives the last touch of beauty. With me I. Ibirica is the most reliable of the Oncocyclus section of Irises, and seems more amenable to cultivation in the border. It should be grown by all fanciers of fine hardy plants. Care should be taken to secure strong clumps when possible. They should be kept dry after flowering until the middle of August. After this time, in our climate, I believe they are better for full exposure in all seasons. I am in much doubt as to this point in the cultivation of the other members of the family, but at present am inclined to believe that protection is not required for the majority of them. There is much variety of habit among the dozen or more species. Some of these I have not grown long enough to become fairly acquainted with, and some of the older ones take their leave just as one fairly warms up to their habits. Oncocyclus Iris-flowers are pretty scarce every season in my garden, however it may be elsewhere, and to ensure crops these plants should be kept in a cool house, where they usually do very well. Still there is a certain amount of pleasure in trying to establish such nice plants in the open, and the failures are annual incentives to a new trial. One always has before him the possibility of a perfect success sometime, when a mass of beautiful flowers will repay all previous cares. These, it may be said in passing, are not "the poor man's Orchids," as some one has dubbed the Irises, for, though not usually expensive plants, they are mostly unreliable, and one can grow fairly scarce Orchids at a much less average expense of flower.

Primroses.—If I have not noted the Primrose season each year in Garden and Forest it has been an oversight and a neglect of one of the most charming flowers of the period. At this time the tufts of hybrid Primroses are in full blow; there are those pure white, the dainty yellow to which it has bestowed its name, and the even more effective orange. Then we have pale reds, almost pink, and dark reds, some very bright indeed, and magentas. For bright spring bedding effects nothing could be better. Of course, we must have Pansies, but these Primroses are even less trouble and have a character all their own, and a distinct effect. They are readily grown from seed sown now, the plants from which may be transplanted in some out-of-the-way corner to make growth. They need no protection, summer or winter, and may be shifted at any time with safety, if care is taken to remove them with a good ball of earth. The old plants can be pulled apart when new stock is wanted, and each crown will soon form a new clump, so that they are rapidly increased.

Dean's (English) strain is probably the most satisfactory one, Mr. Dean having made a speciality of these and worked up the modern Primrose to its present standard with the blood of many species.

The old favorite Polyanthus is also in full flower, and its golden trusses, with shades of dark reds, are very effective, especially when peering from the grass among which they hold their own. Primula species do not continue with me for long, usually disappearing from the borders after a short life. The varieties of P. cortusoides seem to be the only constant ones, perhaps, to remind me that we differ in our likings in colors, for they are mostly pitiable blue reds. Their light green waxy leaves, however, are very pretty, and they flower in a light, graceful way on tall scapes, with an umbel of lightly formed flowers. There are a few alpine Auriculas under glass, the flowers with rich velvety colors and light edges, the handsomest of the Primrose family. But these are much care under glass, and one earns his Auriculas grown in that way. Hereafter they shall take their chances out-of-doors, where it is to be hoped the slugs may be merciful.

Elizabeth, N. J. *J. N. Gerard.*

Retarding Plant Growth by Means of Low Temperature.

EARLY in February of 1893 a number of plants of Golden-rod, Solidago juncea, and Aster Novæ Angliæ were dug from the frozen ground with as large an amount of soil adhering to the roots as possible. The ground was frozen so hard that it was difficult to get many good roots, but in a few instances a fairly large proportion of the root-system was obtained. These plants were then packed in boxes in damp moss without being allowed to thaw out, and the plan was to subject them to cold during spring and early summer, in order to prevent them from starting into growth. The ice-houses in the city were being filled at the time, and arrangements were made for storing the boxes so that they should be in contact with the ice until removed during the summer. After being filled with plants and damp moss, strips of lath were nailed across the tops of the boxes to keep the contents from being thrown out when they were handled. Only a small amount of air could reach the plants, for the moss was firmly pressed in, and the ice would also prevent such circulation.

It was not until the 10th of the following October that the three boxes were removed from the ice-houses. When unpacked about a week later it was found that the Asters and the Golden-rods had thrown out shoots from one to two inches long; these were perfectly white.

The plants were put into five and six inch pots on October 18th, the soil being a rather coarse, rich, clay loam. Those which carried much soil were trimmed down till they fitted the pot, and only little additional soil was needed. After being potted the plants were put in a cool house. Most of them soon started into active growth, and all promised well for a good crop of blossoms. All the plants did not fulfill their promises, but one after another became tired of growing and stopped short. Others continued as they began, and during the latter part of February and throughout March they opened the

flowers which normally should have appeared about six months earlier.

The blossoms which appeared upon the Asters were fully one and a half inches in diameter, but later ones were smaller. The color appeared to be practically of the same tint as that produced by plants growing under normal conditions. The number of blossoms produced was smaller, and although the largest plant made a growth of practically thirty inches, it produced only nine flowers. Several stems which should have borne failed to do so, probably from want of sufficient nourishment.

The Golden-rods gave by far the best results. The strongest plant was twenty-eig t inches high and had eight flower-bearing stems. This plant is practically a weed in many cases when it takes possession of entire fields. In the fall it is so abundant that its beauty is overlooked, and perhaps the strange treatment it received somehow brought out all its possible charm. But, whatever may have been the cause, the plant gave us a surprise that was almost startling. Rarely can one see such rich coloring as was brought out when the deep yellow of the flowers was seen among the other flowers in the greenhouse. Contrary to all expectation, the element of coarseness seemed to be entirely removed when the plumes of yellow blossoms were brought in close contrast with even the most delicate of foliage or flowering plants. It seemed to have the power of blending harmoniously with nearly every plant grown.

If Asters and Golden-rods can be forced, it is probable that few flowers now grown can equal them in beauty and attractiveness in late winter or early spring. This is particularly true of the Golden-rod. From the success attending this attempt it would seem that with better preparation of the plant the work could be even profitably carried on in the manner described above, although, perhaps, more successful methods could be devised.

It may be added that cuttings of the common White Willow, the Victoria Currant, and of Stark and Sweet Bough Apples were packed in the moss with the Asters and Golden-rod, and treated in the same way. Without giving details here, it is sufficient to state that many of these were quite dead, and those which survived generally showed greatly impaired vitality. The living ones showed interesting differences, which may be worth describing hereafter.

Cornell University. *E. G. Lodeman.*

The Chinese Quince.—This beautiful small tree is now flowering here, although rather more sparsely than usual, since many of its flower-buds were injured by the frost. Its leaves on the upper side are smooth and shining, as if varnished, but while young are pubescent on the lower surface. The bright pink blossoms are about half the size of those of the common Quince, and are scattered along the larger branches of the tree. They have very short flower-stalks, and appear a few days before those of the common Quince. It is somewhat remarkable that this tree is not more generally cultivated, for, in addition to its neat habit and attractive flowers, its large and beautiful fruit is singularly fragrant, and in autumn its foliage turns to most brilliant colors. The partial failure of the tree to flower is unusual, but this is a year when many bright things have suffered. The lovely form of Pyrus dorings, known as P. Parkmanni, has lost every flower-bud.

Fig. 34.—Prunus orthosepala.—See page 184.

Shepherdstown, W. Va. *Danske Dandridge.*

The Onion Maggot.—We fought a losing battle with this enemy for several seasons until kerosene was tried, and we have had good crops ever since. Half a pint of kerosene is well

mixed with a pailful of some dry material, preferably wood-ashes, but sand, sawdust, or even dry soil will do fairly well, and after the plants are well up and the trouble is at hand a sprinkling of this mixture along the rows about twice a week during the time the fly does its work will be found a sure preventive of the trouble. With us this is from the beginning of April to the end of May; after this there is little danger, as the onions are of a good size and not so liable to injury.

South Lancaster, Mass. *E. O. Orpet.*

The White Grape Currant.—I have an idea that many persons think they have this variety, when in reality they have some other sort. It was a long time before I secured what I believe now to be the genuine plants. The White Grape is, in my judgment, absolutely the finest Currant grown. It is very large, handsome and of a clear color, entirely unlike the creamy color of the more common so-called White Currants. The White Dutch has a very rich flavor, but it is more seedy and mellow. The color is translucent, with a soft yellow tint. I find the true Versailles not unlike the Fay in size and color, but it has a much more upright growth. It has a long fine stem, and is enormously productive, with a flavor almost exactly like that of the Fay.

Clinton, N. Y. *E. P. Powell.*

Correspondence.

Measurements of White Pine.

To the Editor of Garden and Forest:

Sir,—In the pursuit of an extensive series of measurements instituted by the Forestry Division for the purpose of ascertaining the rate of growth and production of White Pine and Spruce, one of our agents has just reported from Merrill, Wisconsin, the measure of a remarkable White Pine, a windfall, which had been thrown probably a number of years ago, as the sap-wood, mostly rotten, indicates. It measured 200 feet in length by forty-five inches in diameter on the stump. As in the Census work of Professor Sargent, the range in height is given to 170 feet (fifty-two meters), it might be interesting to record this unusual length of an old monarch. Altogether, the measurements of the acre-yield on the clay soil of the station, with a good humus cover, are worthy of notice. The height of the Pines, which are mixed with Hemlock and Birch, averages over 120 feet, not a few reach the height of 150 feet; the length of the timber—that is, of the merchantable part—exceeded in many of them 100 feet; the total amounts of timber contained on the acre are not as yet computed. The age is from 200 to 250 years; the diameters are not extraordinary, and range from thirty to thirty-six inches.

In this connection I would like to ask readers of your journal for addresses where second-growth White Pine groves, naturally grown or planted, could be found in New England, for measurements of their yield.

Forestry Division, Department of Agriculture. *B. E. Fernow.*

The Flavor of Maple-syrup.

To the Editor of Garden and Forest:

Sir,—According to his promise, Professor Hills has sent me some of that maple "honey," and it is delicious. The drip is heavy and good, the color is light and the flavor delicate, and the true maple taste can be recognized on cakes made from refined wheat-flour, but it is almost imperceptible on cakes made from buckwheat, Graham flour, corn-meal or any other grain with a flavor of its own.

I do not urge a return to the open kettle in making maple-syrup, but I do believe that syrup properly made in open pans has a better flavor than that made in the modern evaporator. I do not believe that the especial maple flavor is due to leaves, buds and foreign matter, and what I should like to know is, whether a syrup or sugar can be made by modern methods, whereby this flavor will not suffer? I should like to know if any one is prepared to present evidence that the present style of evaporating does not destroy at least a part of the real flavor of the maple-sap, which would occur in the syrup if made in the open kettle, even when all leaves, buds and "dropping mosses and fragments of bark" are excluded. It is possible that here is a field for investigation worthy the attention of chemists and practical maple-sugar-makers. The open kettle does not furnish an ideal method of making syrup, and yet there is abundant evidence that much of the syrup and sugar made by the modern evaporator is of very unsatisfactory quality.

Agricultural Experiment Station, Ind. *C. S. Plumb.*

Irrigation in the Garden.

To the Editor of Garden and Forest:

Sir,—A few years ago my little daughter brought home about fifty Verbena plants from one and a half inch pots. They appeared to be worthless and had been given to her by a gardener who was about to throw them away. To gratify the child I planted them in the only place which I could use for that purpose—a shady back-yard, trodden hard by the children. I spaded the ground about eighteen inches deep, added a little fresh earth and well-rotted barn-yard manure, making a bed about seven feet square, with a shallow ditch around it. The plants were watered freely with a sprinkler two evenings and the ditch filled with water at the same time. The summer was very dry, but no further sprinkling was done until the early frosts came. About once a week the ditch was filled with water and kept filled for an hour. The Verbenas soon covered the ground and yielded a profusion of bloom until the plants froze. The effects of light frosts were dissipated by free sprinkling with cold water before the sun reached the bed. Is there not a hint in this homely experience for watering by means of open ditches, where costly methods of subirrigation are not practicable?

St. Paul, Minn. *F. D. Willis.*

Recent Publications.

The winter-killing of trees and shrubs is the subject of a recent bulletin from the Wyoming Experiment Station, a subject interesting everywhere, but particularly so in the arid regions and high altitudes of western plateaus where fruit-trees and forest-trees are grown with great difficulty. Trees and shrubs thrive on these high plateaus during the irrigation season, but the most promising often fail to get through the first winter. The cause of this can hardly be the low temperature, for it is not colder there than in New England or Minnesota, where winter-killing is less common. It is, therefore, probable that desiccation is the principal cause of winter losses. Since the water absorbed by the roots contains food-material in very small quantities, the excess of water passes off by transpiration. The rate of transpiration is greater when the light is intense, and it is greater in a high temperature, so that in these high altitudes, where the intensity of the light is only dimmed by slight cloudiness, and where the rays of the sun in the rarefied air fall with peculiar force upon all exposed objects and raise their temperature considerably beyond that of the surrounding atmosphere, transpiration is greatly accelerated, while the prolonged winds agitate the trees and aid in this work. An excessively dry atmosphere increases transpiration, and the roots in a dry or frozen soil cannot make good the loss, because the low temperature decreases the absorbing power of the roots and the conducting power of the stem, and the soil yields its water much more slowly. Although when leaves are absent no one notices the wilting of vegetation, the plant dies as truly from wilting in January as it does in July.

There is one other factor in the case which has not often been considered, and that is atmospheric pressure. It seems probable that the diminished pressure in high altitudes exerts an influence upon transpiration independent of the fact of dry atmosphere. To determine the relation between atmospheric pressure and transpiration, Mr. Alven Nelson, the botanist of the station, constructed an apparatus for testing this point, and the experiments prove conclusively that the rate of evaporation from the surface of the plant is proportionately increased by the diminution of the atmospheric pressure, and this, added to the several other causes of desiccation specially operative in the plains region, indicates the real cause of such a large percentage of winter-killed trees and shrubs.

Of course, the remedy is to keep the plant, and especially the roots, in a moist condition, but this is often difficult to accomplish. Late fall irrigation and occasional irrigation during the winter months is recommended. It frequently happens that although the soil temperature is below the freezing-point, there is not enough moisture in the particles of the soil to cause them to adhere to each other, and for the purposes of the plant the soil is absolutely dry. If water is flowed over the soil on a warm day some of it will enter into its interstices, and if a coat of ice forms over the surface this will prevent loss by evaporation. In the natural groves of Cotton-wood that border the western streams, the ground in winter is usually covered with ice and snow. Irrigation is especially needful during the first two or three years after transplanting, when the roots are few and near the surface. After they have penetrated below the frost-line the plant will be much better

able to care for itself. The first winter is especially critical, for then the transpiring surface is in excess of the absorbing surface, and the soil-connection of roots with the soil is more easily broken by the winds which sway the tree. The reason why the Pines and other conifers which thrive on neighboring mountain-sides cannot be made to grow on the plains may be explained by the fact that the clouds and fogs in which mountain vegetation is bathed, and the higher relative humidity of the atmosphere, tend to reduce transpiration, while the deeper snows furnish more soil-moisture. In the plains, where the soil-moisture is reduced and the atmosphere is relatively dry, the sun raises the temperature of the leaves and accelerates transpiration, while the absorbing power of the roots does not increase. Whether irrigation is feasible or not, a liberal mulch will prevent frost from penetrating so deeply, will retard evaporation from the soil, keep the moisture near the surface and give the plants the fullest benefit of all water received, whether from artificial or natural sources. Tender plants need protection against sudden changes of temperature as well as desiccation. Small trees may be wrapped with straw, or even with paper, and old barrels with the bottoms removed can be set over the plants and then have hay packed about them. This is especially valuable during the first winter or two after the plant is set out. In some places on the plains Peach and other less hardy fruit-trees are set out with the roots trained in two opposite directions only. In autumn a trench is dug close to the tree on one side at right angles to the root-line, and it is bent over until it lies as nearly horizontal as may be. The soil then thrown about and over it holds it down and serves as the best protection from loss of water and against sudden changes. In the spring the soil is removed and the trees straighten up, none the worse for their winter sleep if due care has been taken to disturb the roots as little as possible.

Meetings of Societies.

Fruit-growing in Florida.

FLORIDA has an exceedingly vigorous Horticultural Society, which held its seventh annual meeting in Jacksonville on the 10th of April. The two hundred active members who assembled were welcomed by the Mayor, who encouraged them by some eloquent remarks on the importance of fruit-growing and other branches of horticulture. President W. W. Adams illustrated this fact by stating that the orange crop alone amounted to five million boxes, while peaches, pears and tomatoes were leaving the state by the car-load, and there are preparations already made in the state to furnish train-loads of all these in the near future, while there are Orange groves enough planted to produce in a few years twenty million boxes. Mr. Adams claimed that the depressed condition of the fruit trade was not due to overproduction, because the crop of oranges now produced would only furnish one orange a month to each inhabitant of the United States. The business, however, had outgrown the facilities for transportation, and something must be done to enlarge these facilities and economize in transportation, or the future of fruit-growing in Florida would be without hope.

Mr. George H. Wright reported that in Orange County grape-growing began some seven years ago, and last year there were five hundred acres in cultivation. The low price received in 1893 had reduced the acreage somewhat. Refrigerator-car service was necessary to make growing grapes for market profitable, otherwise the grapes must be converted into wine. He advised against planting any more Niagaras, and on sandy soil such varieties as Herbemont, Norton's Virginia, Cynthiana were recommended. He thought that vineyards should be set on higher land than had been previously recommended. The vines should have clean culture until June 1st, and a complete fertilizer, one which contained ammonia, phosphoric acid and potash, should be freely used. Growers from western Florida stated that Grapes in that region set on high and well-drained soil had done well. Some growers declared that their products had reached northern markets in such good order as to realize reasonable returns. The experience of others was less satisfactory, and many of the members claimed that, on the whole, grape-growing, beyond raising enough for family use, was not an industry to encourage.

A large Pineapple-grower of southern Florida had found Scrub Pine land to be the best adapted for this fruit, and the varieties which were the most profitable were the Egyptian Queen, Strawberry and the Scarlet Pine. From 12,000 to 15,000 plants could be set out on an acre, and sixty per cent. of these would fruit the second year, while the next year some of the plants would have from three to five fruits each. Mr. Richards, who is known as the Pineapple King, states, in reply to an inquiry as to how long the plants would bear, that he had been in the business fourteen years, and his plants now looked better than they did five years ago.

The Fruit Committee called attention to a formidable rival of Florida which was much nearer than California; this was the coast-region of Texas, where an area equal to the entire peninsula could be utilized for growing subtropical fruits. During the last twenty-five years the progress of fruit-growing in both these states had been so rapid, and they had so many interests in common, that it was proposed to hold a joint meeting of Texas and Florida horticulturists to devise the best means of uniting for mutual benefit.

Professor Swingle, of the State Experiment Station, reported that he had discovered a speedy and easy way of making a sulphur solution which had proved an effective remedy for the rust mite and red spider which attacked citrus fruits. The formula is 32 pounds of flowers of sulphur made into a paste, with 12 quarts of water, 20 pounds of caustic soda 98 per cent. strong, and 4 quarts of water, which are thoroughly mixed and then diluted to 20 gallons. Two quarts of this to a barrel of water should be used for the rust mite, and 4 quarts for the red spider. Against the white fly, which causes what is known as smut on the orange and is now the occasion of some alarm, the following remedy was recommended by Professor Webber: Four and a quarter pounds of caustic soda, 20 pounds of resin, 3 pints of fish oil and 20 gallons of water are put in an iron kettle, and when dissolved are boiled ten minutes. When the mixture is cooled it should be used in the proportion of one part diluted with five parts of water. This is effective against scale of all kinds and the red spider, and is just as valuable for deciduous trees as for the Orange and Lemon. The cost of this mixture was estimated at half a cent a gallon of spraying material when ready for application.

It was generally agreed that in applying fertilizers high-grade mixtures were to be preferred. Some of the members advised planters to buy the different materials and mix them at home. Others believed that it is equally as cheap to purchase the prepared fertilizer from reliable firms. It is evident that more experience is needed with commercial fertilizers as well as with home-made manures before definite conclusions can be stated in regard to their use in this region.

After all, the topic of paramount importance was that of transportation and transportation rates, and the statement that a barrel of flour could be brought east for one-third of the price which it costs to transport a box of oranges west, was cited as an instance of unjust discrimination. The resolution to favor the bill now before Congress to open the coasting trade to vessels carrying foreign flags caused such a heated discussion that the society adjourned with some bitter feeling on both sides.

Notes.

The beautiful pink and fragrant flowers of Daphne Cneorum have opened unusually early this year. When planted in the rock-garden in light well-drained soil this Daphne is singularly beautiful. A few large plants of this mingled with hardy Candytufts, which trail over the rocks in a similar way, and are covered with the whitest of flowers, just now make a beautiful show.

The recent numbers of Engler & Prantl's *Die Natürlichen Pflanzenfamillien* that have reached us bring the work down to the one hundred and second part. Some of the groups here treated are Stachyuraceæ, considered a family with a single genus of two shrubs, native to Japan and the Himalayas; Guttiferæ, Onagraceæ, Turneraceæ, Passifloraceæ, Bignoniaceæ, Caricaceæ, and a continuation of the Leguminosæ commenced in an earlier issue.

A correspondent of the *Tribune* writes that the most interesting feature of the midwinter fair in San Francisco is the flower-show which is now made by the different counties. The exhibit, both of cultivated and wild flowers, is noteworthy, and it can be commended to every tourist as a revelation of the possibilities of floriculture in a land where frost and snow do not hamper the gardener. The recent rains have brought out the Roses in fine form, and the Rose-show, which begins on May 11th, promises to be exceptionally attractive.

The fruit-growers of California are hopeful of a good year since last week brought abundant rain and the late frosts have done but little damage. In the San Joaquin Valley many

hundred acres of Pear-orchards will come into bearing for the first time this year, and if there is any shortage in the eastern crop on account of the frosts the California growers ought to obtain good prices. Arrangements have been made to guarantee shipments to Chicago in five days, which ought to silence any complaints that the fruit has been gathered too long before it is sold.

The April number of the *American Naturalist* contains an article by Professor L. H. Bailey, in which the origin of the cultivated Strawberry is discussed. The conclusion is that our garden Strawberries are modifications of the Chili Strawberry. This modified type has driven from cultivation the Virginia berries, which were earlier introduced into gardens. The original type of the Chili berry is little known, as it disappears quickly through variation as soon as it is impressed into cultivation. If this conclusion is correct, the Strawberry is an example of the evolution of a type of plant in less than fifty years which is so distinct from all others that three species have been erected upon it, and so distinct that it has rarely been associated specifically with the plant from which it really sprang.

Among the plants now blooming in the hardy herbaceous garden are the Globe-flowers, Trollius Europus and T. Asiaticus. Their flowers, which are good for cutting as well as for brightening the border, resemble somewhat large buttercups, being a deep pure yellow, although they are globular in form. They have, too, the advantage of blooming again quite freely in the autumn. Trollius Japonicus does not bloom so long, but the deep orange color of its flowers makes it effective. Our native T. laxus, as well as T. Caucasicus, are also worth planting. A year or so ago Mr. Orpet noted in these columns that the best way to get up a stock of these plants is from seed which had better be sown in autumn and treated to a good freezing in the cold frame. Under these circumstances every seed will come up in the spring; if not frozen may remain dormant for years.

On Arbor-day, in the state of Pennsylvania, a number of prominent Philadelphians connected with the Pennsylvania Forestry Association planted, with appropriate ceremonies, at the south end of the Centennial Concourse, in Fairmount Park, nine saplings: a Sugar-maple in memory of Rev. J. P. Lundy, D.D., the first President of the American Forestry Association; an American Elm in memory of Dr. D. Hayes Agnew; an Oak in memory of General Meade; an Ash in memory of George W. Childs; another Ash in memory of Furman Sheppard; a Sugar-maple in memory of Governor Hartranft; a Linden in memory of Dr. Joseph Leidy; another Linden in memory of John Welsh, and a Sweet-gum in honor of Thomas Meehan, who will live, let us hope, to watch its growth for many years. Memorial plantings of this sort are certainly a very appropriate way of observing this holiday, and the trees, if properly cared for, will be invested with an affectionate interest which will increase with coming years.

During the months of May and June, Mr. J. G. Jack will conduct a series of lectures and field-meetings at the Arnold Arboretum for the purpose of supplying popular instruction concerning the trees and shrubs which grow in New England. A knowledge of descriptive botany is not essential for persons who wish to take this course, as the intention is to indicate the easiest means of distinguishing the commonest native trees and shrubs, and recognizing the foreign species which have been introduced into gardens. The ornamental and useful properties of the trees and shrubs, their habits of growth and other peculiarities will be considered, and the different species will be studied as they blossom, whenever this is practicable. The class will assemble twice a week in the lecture-room of the Bussey Institution, and will then adjourn to the plantations and nurseries of the Arboretum for the formal outdoor study of the plants. During the season the class will meet once or twice outside of the Arboretum at some favorable place for the study of trees.

According to the *Evening Post* of this city, machinery is now being set up in Newark, New Jersey, for manufacturing ammonia from atmospheric nitrogen. Every farmer knows that nitrogen is one of the essential elements of plant-food and that it is far the most expensive of the elements that are required in fertilizing mixtures. It is well known, too, that nearly four-fifths of the great ocean of air that surrounds the earth is nitrogen, and that it is practically useless as food to plants, although they are bathed in it all the time. Recent researches have shown, it is true, that a small portion of this nitrogen can be utilized by certain plants, especially those belonging to the Leguminosæ, but there never has been any available method of transforming the nitrogen of the air into plant-food for general use. Of course, it is not wise to expect too much from any reported discovery, but if it is true that the sulphate of ammonia can be produced by this new process at about one-quarter of its present cost this will be one of the greatest boons that the science of chemistry has yet bestowed upon the art of agriculture. If ammonia can be cheaply manufactured from atmospheric nitrogen the discovery means that a great step has been taken toward securing a material increase in the productiveness of the soil.

The demand for bananas is shown by the quick sale of 130,000 bunches in this city alone, last week, at a wholesale price as high as $1.65 a bunch. The scarcity and high price of domestic and all other foreign fruits, excepting pineapples, help the sale of bananas at this season, and large orders are received here from the interior and from Canada. King of Siam oranges come with the last Florida oranges, and selected ones sell for $1.00 to $1.50 a dozen. Grape-fruit last week reached the highest price ever paid for it here, selling at auction for $7.12½ a box wholesale. The largest lot of California oranges received in New York this season, 1,500 boxes, sold here last week at low prices. Probably the first box of cherries shipped east from California this season was sold in Chicago on the 25th of April. The first boxes of Knight's Early reached New York from California on April 30th, fifteen days in advance of last year's arrival, when the first cherries came from South Carolina two days ahead of those from California. These cherries are small, however, and dull in color, and sell slowly at $3.00 to $4.00 at wholesale for a box of ten pounds. The first Peen-to peaches, from Florida, also came last week, and these cost $1.00 a dozen in the fancy fruit-stores. Black Hamburg and Muscat hot-house grapes, from Rhode Island, are luxuries which cost $3.50 to $4.50 a pound.

The Cuba pineapple season opened about four weeks ago, and 27,000 barrels of the fruit were unloaded on our docks last week, nearly as many having come the week previous. They are delivered here in four grades, packed in large sugar-barrels, holding a third to a half more than ordinary flour-barrels. The highest grade, known as Extras, are in moderate quantity, and sell now at fifteen to eighteen cents each at wholesale. It takes only forty of these large pineapples to fill a barrel. The grade known as No. 1 counts from fifty-three to sixty fruits to each barrel, and these sell at ten and eleven cents apiece at wholesale. Grade No. 2 runs seventy pineapples to a barrel, bringing about nine cents each, and the smaller, No. 3's, eighty to one hundred to a barrel, range from five and a half to seven cents each in the wholesale storehouses. The two lower grades are most plentiful. This fruit, like the banana, is gathered green, and is ripened up here. There is this season an unusual amount of decay in ripening, which causes a shrinkage of nearly twenty per cent. to the wholesale dealer, for the fruit is all assorted before it is offered for sale. The variety now on the market known as the Red or Strawberry pineapple continues in abundance throughout May, and in moderate supply until the end of June. This is in demand for preserving from the 10th to the 30th of May, when the fruit is most abundant and well matured. The Strawberry pineapple is superior for making extracts on account of its rich flavor. The Sugar-loaf pineapples begin to come early in June, and large cargoes are unloaded here until the end of July, when our domestic fruits hold the market. The tender pulp of this variety makes it, perhaps, the best sort for preserving, and householders secure their supply for this use from the twentieth of June to the first of July. Pineapples and strawberries react on each other in price, according to their comparative abundance. The pineapples offered here during the winter come from Havana. They are of choice quality, being selected from the best fruit in the fields at a season when there is but a limited demand. Florida pineapples were hardly a factor in the market until the past two or three years. This year the crop in that state will amount to 50,000 or even 60,000 cases, a case holding as much as a small barrel. The plantations are in the Indian River country and extend to the Biscayne Bay district. Large tracts are being planted in Pineapples in other sections of the state, and it is expected that in five or six years Florida pineapples will crowd out much of the foreign crop. The fruit is handsome in appearance, and brings a good price. The season continues from the middle of May until the end of July, and some of these pineapples are seen here in the fall months. Present freight rates favor Cuba, a large barrel from Havana costing but seventy-five cents, while the charge on a small case from Florida is from $1.15 to $1.40.